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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,128	04/26/2001	Koon Hoo Teo	71493-972/ccm	6543

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Ralph A. Dowell of DOWELL & DOWELL P.C.
2111 Eisenhower Ave.
Suite 406
Alexandria, VA 22314

EXAMINER

RAMPURIA, SHARAD K

ART UNIT	PAPER NUMBER
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2683

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/842,128

Applicant(s)

TEO ET AL.

Examiner

Sharad Rampuria

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 and 46 is/are pending in the application.
- 4a) Of the above claim(s) 43-45 and 47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-42 and 46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Response to Amendment

1. Applicant's arguments with respect to claims 1-42 and 46 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 9-14, 19-23, 25-29, 32-34, 36-39, 41-42 & 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenstein et al. (US 6131016) in view of Kraiem et al. (US 6370369).

Regarding Claims 1, 32 and 46 Greenstein disclose an Orthogonal Frequency Division Multiplexed (OFDM; Abstract) Base Transceiver Station (10; Fig.1, Col.2; 32-35) arranged to communicate with a plurality of mobile terminals within a coverage area including at least one target mobile terminal (Abstract), the BTS comprising:

a processing apparatus that operates to receive and process service and data traffic information; (Fig. 2A, Col.3; 33-48) and

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a transmission apparatus that operates to receive the processed service and data traffic information, to transmit the processed service information on a first set (Col.3; 4-12) of carriers to the mobile terminals within the coverage area with at least one first transmission beam and to transmit the processed data traffic information on a second set (Col.3; 13-22) of carriers to the target mobile terminal on at least one second transmission beam,

Greenstein fails to disclose the directional transmission beam. However, Kraiem teaches in an analogous art, that wherein the BTS is operable to modify the direction of focus of the directional transmission beam in order for each of the mobile terminals within the coverage area to receive the processed service information. (Abstract, Col.1; 61-Col.2; 17 and Col.2; 66-Col.3; 22) the second transmission beam being a directional transmission beam. (col.3; 57-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include the directional transmission beam in order to provide the antenna diversity setup in wireless communication network.

Regarding Claims 2-4, 27-29 and 33-34 Greenstein disclose the OFDM BTS according to claims 1, 32 respectively, the service information comprises pilot information and signaling information. (col.3; 59-67)

Regarding Claim 5, Greenstein disclose an OFDM BTS according to claim 4, wherein the transmission apparatus comprises at least one first transmission beam output path, the first transmission beam output path comprising a transmitter coupled to the processing apparatus and an antenna coupled to the transmitter; and wherein the first transmission beam output path

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receives the processed service information from the processing apparatus and operates to generate the first transmission beam. (col.3; 33-48)

Regarding Claims 6, 13-14, Greenstein disclose all the particulars of the claim except a directional antenna. However, Kraiem teaches in an analogous art, that the OFDM BTS according to claims 5, 1 wherein the transmission apparatus comprises a plurality of first transmission beam output paths, each of the first transmission beam output paths comprising a transmitter coupled to the processing apparatus and a directional antenna coupled to its respective transmitter; and wherein each of the first transmission beam output paths receives the processed service information from the processing apparatus and operates to generate a portion of the first transmission beam, each of the portions of the first transmission beam being focused on a portion of the coverage area. (Abstract, Col.1; 61-Col.2; 17 and Col.2; 66-Col.3; 22) the second transmission beam being a directional transmission beam. (col.3; 57-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include a directional antenna in order to provide the best antenna for transmission in wireless communication network.

Regarding Claims 9-12, 19-23 and 36-39 Greenstein disclose the OFDM BTS according to claims 5, 13, and 32 respectively, the transmission apparatus further comprises a second transmission beam transmitter coupled to the processing apparatus, a switch coupled to the second transmission beam transmitter and a plurality of second transmission beam directional antennas coupled to the switch; and wherein the switch receives the processed data traffic

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information from the second transmission beam transmitter and selectively forwards the processed data traffic information to a set of the second transmission beam directional antennas to generate the directional second transmission beam. (e.g. selection switch; col.5; 1-7)

Regarding Claims 25, 41 Greenstein disclose an inverse fast fourier transform block according to claims 1, 32 respectively, wherein the processing apparatus comprises at least one data traffic and service information processor that operates to receive and process data traffic and service information and an inverse fast fourier transform block (IFFT; 202b, 203b; fig.2A) coupled between the data traffic and service information processor and the transmission apparatus. (col.3; 33-48)

Regarding Claims 26, 42 Greenstein disclose the OFDM BTS according to claims 25, 41 respectively at least one data traffic and service information processor comprises a data traffic information processor, a signalling information processor and a pilot information processor; and wherein each of the data traffic, signaling and pilot information processors perform at least one of modulation mapping, interleaving, rate matching, forward error correction encoding on the data traffic, signalling and pilot information respectively. (col.5; 8-23, 45-62)

Claims 24 & 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenstein and Kraiem further in view of Tellado et al. (US 6512797)

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Regarding Claims 24, 40 The above combinations disclose all the particulars of the claim except Peak-Average-Power Ratio (PAPR). However, Tellado teaches in an analogous art, that An OFDM BTS according to claims 1, 32 respectively further comprising at least one Peak-Average-Power Ratio (PAPR) block coupled between the processing apparatus and the transmission apparatus, the PAPR block operating to reduce peak power of the processed service and data traffic information. (col.16; 21-34) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include Peak-Average-Power Ratio (PAPR) in order to provide methods and systems for reducing the peak to average power ratio of a multi carrier signal.

Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenstein and Kraiem further in view of Rasanen. (US 6678527)

Regarding Claim 30, The above combinations disclose all the particulars of the claim except at least one audio traffic information. However, Rasanen teaches in an analogous art, that An OFDM BTS according to claim 29, wherein the transmission apparatus operates to transmit the processed data traffic information with at least one audio (82; fig.8) traffic information transmission beam and at least one non-audio traffic information transmission beam. (col.10; 1-27) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include at least one audio traffic information in order to provide multiservice calls in mobile mobile network.

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Regarding Claim 31, the above combinations disclose all the particulars of the claim except at least one audio traffic information transmission beam and at least one video traffic information transmission beam. However, Rasanen teaches in an analogous art, that An OFDM BTS according to claim 29, wherein the transmission apparatus operates to transmit the processed data traffic information with at least one audio (82; fig.8) traffic information transmission beam and at least one video (81; fig.8) traffic information transmission beam. (col.10; 1-27) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include at least one audio traffic information transmission beam and at least one video traffic information transmission beam in order to provide multiservice calls in mobile mobile network.

Claims 7-8, 15-18, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenstein and Kraiem further in view of Dalal et al. (US 2004006775).

Regarding Claims 7-8, 15-18, and 35 the above combinations disclose all the particulars of the claim except the phase adjusters. However, Dalal teaches in an analogous art, that the OFDM BTS according to claims 5, 13 and 32 respectively, the transmission apparatus further comprises a plurality of second transmission beam output paths, each of the second transmission beam output paths comprising a phase adjuster coupled to the processing apparatus and further coupled in series with a transmitter and an antenna; and wherein the second transmission beam output paths each receive the processed data traffic information from the processing apparatus and operate together to generate the directional second transmission beam by selectively

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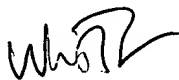
adjusting their respective phase adjusters. (Pg.11; 0117) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include phase adjusters in order to provide a technique of receive and transmit arrays in the multiple antenna system.

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharad Rampuria whose telephone number is 703-308-4736. The examiner can normally be reached on Mon-Thu. (8-5:30) alternate Fri. (8-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or EBC@uspto.gov.



WILLIAM TROST
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

2 March 2005

Sharad Rampuria
Examiner
Art Unit 2683